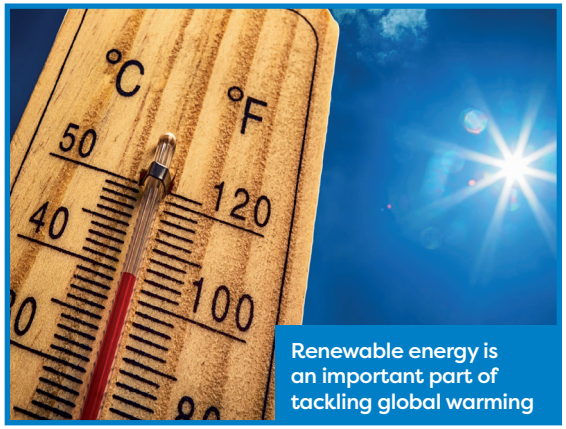
IS THE GOVERNMENT DOING ENOUGH TO CONVERT ENERGY SUPPLIES TO RENEWABLES?

THE DILEMMA

The UK is surrounded by water, and it is very often very windy. But are we turning enough of that wind and water (and sunshine!) into energy?



Renewable energy is an important part of tackling global warming

Examples of renewable energy include wind, solar (using the sun's rays) and tidal (harnessing energy from the sea). These sources do not produce large amounts of greenhouse gases, which are the primary cause of global warming, also known as climate change.

Non-renewable energy sources are oil, gas and coal, which are known as fossil fuels. They are extracted from deep inside the Earth and seabeds. Not only will these run out one day, but their use is also very damaging for the environment and contributes to climate change.

According to the BBC Weather Centre, the UK has the most suitable weather in Europe for all renewable energy systems to work. But is our Government doing enough, fast enough, to move us off polluting fossil fuels and onto renewables?

Well, there has been some good news lately. Firstly, the Government recently announced an agreement with the wind industry which could see a big increase in the number of offshore British wind farms by 2030.

Secondly, a recent week of stormy weather helped produce 38% of all electricity in Britain in a single week. That smashed the previous record for the amount of electricity generated by wind, which was set only a week earlier!

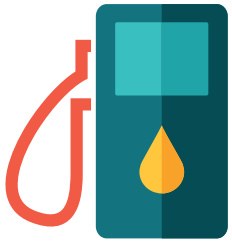
And a recent report by energy experts says that renewables will overtake fossil fuels next year to become the "dominant" source of power in Great Britain.

But can we still do more to stop climate change by switching our focus to wind, sun and sea?

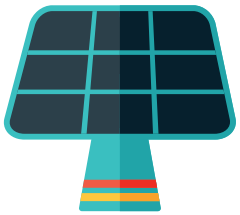

An offshore wind farm

FACTS & FIGURES

In 2017, fossil fuels were the main source of energy supply in the UK, accounting for **80.1%**, a record low level.



Supply from renewables increased in **2017**, with their contribution accounting for **10.2%** of total energy consumption.

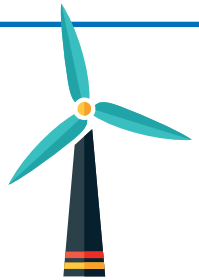


A deal confirmed recently between the UK government and the wind industry will ensure **30%** of our electricity comes from offshore wind by **2030**.

In the first **3 months** of **2015**, Britain generated more of its electricity from renewable sources than from burning coal for the first time ever.

The UK aims to get almost all its power from "low-carbon sources" by **2030**.

Offshore wind generated just **6.2%** of the UK power needs in 2017. This will rise to over **10%** by **2020**.



Children on the recent climate strike protest in London

For a week in March this year, a record amount of electricity was generated by wind farms. **38%** of electricity came from wind, ahead of gas on **28.5%** and nuclear on **20.9%** .

For a week in June during last summer's heatwave, **solar broke the record** for weekly energy output in the UK.

HOW ENERGY WORKS

For the past 100 years or so, electric energy has been the lifeblood that powers countries. Without it, we wouldn't function, because we need energy for virtually everything. From lights to communications to food production to construction, electric energy makes things happen in our homes, schools, factories, hospitals and workplaces. Electricity is powered by energy supplies, and in the past 50 years or so our energy has come from one or more of these sources:

Nuclear

It's expensive and potentially very dangerous if it leaks or there's an accident, but nuclear energy is also much better for the environment than fossil fuel sources. However, the dangerous waste that is produced in the manufacture of nuclear energy is very expensive to store safely.

But nuclear energy in the UK has recently had two big setbacks: last year, Japanese company Toshiba scrapped plans to build a new nuclear power station in Cumbria. Earlier this year, another Japanese company, Hitachi, cancelled its plans to build a nuclear power station in Wales.

The electricity we use comes from various energy sources

Shale

Shale gas is methane (natural gas) that is stuck in shale rock, far underground. Just like oil, natural gas and coal, shale is a fossil fuel. The shale rock is impermeable, which means it is both watertight and airtight. Conventional gas is in permeable rocks, like sandstone, so it can be captured by drilling a well. Shale gas doesn't seep out of its rock. This means the shale rock must be cracked to free the gas, which is where fracking comes in.

The fracking process involves drilling down into the earth in order to extract shale gas from shale rock. After the drill is inserted, a high-pressure mixture of water, sand and chemicals is injected into the rock, which allows the gas to flow out into a well, which captures it. Fracking has been known to cause minor earthquakes, water pollution and shortages, and contributes to climate change. There is a lot of opposition to fracking in the UK, but the Government is pushing ahead with it.


A shale gas fracking drilling rig in Blackpool

Fossil fuels

These are the worst for the environment, as they contribute to global warming, which in turn causes climate change. Oil, gas and coal are all fossil fuels. We rely on oil from the Middle East and other parts of the world, and gas from Norway and Russia. We are using less coal than ever before here, but it was recently announced that the first new deep coal mine in the UK for decades will be opened in Cumbria in the next few years.

Renewables

These are the best for the environment, as they can be constantly 'renewed' (ie they don't run out, like fossil fuels) and they don't give off harmful emissions into our atmosphere.

MAIN TYPES OF RENEWABLES

Solar

Solar power is very straightforward: energy from sunlight is caught in solar panels and converted into electricity. The UK is very keen on this type of renewable energy; in 2014, solar power almost doubled to 650,000 installations such as solar farms and panels on the roofs of homes. This means there are now enough solar panels in Britain to supply the equivalent of 1.5 million homes. A great advantage is that a solar panel on a home can be used directly to provide electricity to that same home, and is quite affordable for the homeowner. Solar power puts individual citizens in control of their energy source. However, the Government recently stopped a scheme to encourage people to get solar panels. More on that later.

Wind

Large wind turbines can turn wind energy into electricity – and the UK has plenty of wind! The British Wind Energy Association says that our offshore wind resources alone could provide three times the UK's annual electricity consumption. The UK currently harnesses wind energy both onshore (on land) and offshore (from the sea around the country) from almost 6,000 turbines. The ones on land are often clustered together and referred to as "wind farms". The construction of offshore turbines used to be very expensive, but costs have fallen a lot recently. This Government has been reluctant to build onshore wind farms, partly because some people consider them to be eyesores.

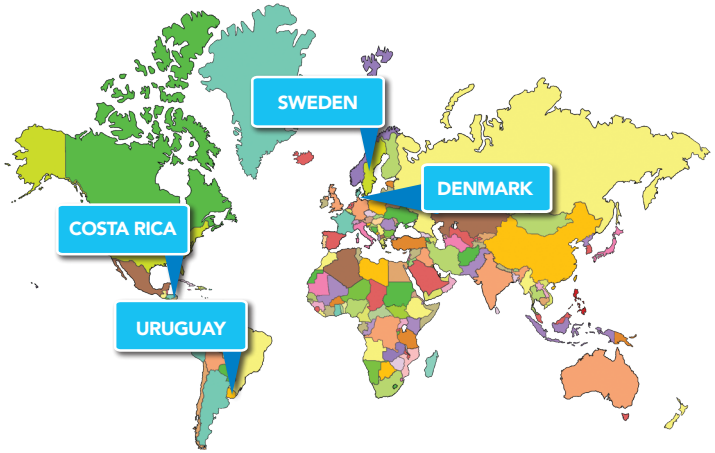
Tidal

As the sea tides move, turbines convert their energy into power. Dams or barrages are constructed to force water through gaps, where the turbines harness the tidal energy. However, these dams can also damage the marine environment. The changes in water movement can affect the types of animals and plants that live in the area, and there have been cases of large populations of fish dying due to disease, loss of habitat and disruption to their movement patterns. In addition, the blades of the turbines have caused injury and death to sea life, too. Tidal power is an expensive scheme, but the potential is enormous because tides are predictable (unlike wind and solar energy), and the UK is, of course, surrounded by water. In the UK, a floating tidal energy turbine was launched off the coast of Orkney, Scotland, that produced more energy in a year than Scotland's entire wave and tidal sector produced in the 12 previous years.

Wave

Although it sounds similar to tidal energy, the process is very different and not widely used yet. Wave power uses devices in the sea to capture the energy of the waves, rather than relying on areas of sea closed off by a dam, like tidal power. A number of devices have been designed to capture the energy of waves, including a large buoy that connects to the seabed and generates electricity from the rise and fall of the sea. Wave power projects would more likely be used to generate power for small areas rather than large sections of the country. There are similar environmental concerns as those for tidal power, too. The world's first wave farm is off the coast of Portugal.

AROUND THE WORLD



Costa Rica has produced almost 100% of the energy used for electricity from renewable sources over the past few years. But renewables make up less than a quarter of the nation's total energy use, because of the huge number of oil-guzzling vehicles on the roads there.

Uruguay also generates nearly 100% of the energy it uses from renewables.

Closer to home, renewable accounts for 54% of the total energy use in **Sweden**. The country also has 3,681 wind turbines installed.

In **Denmark**, 30% of all energy used comes from renewable sources, the biggest of which is bioenergy. This is energy produced from animal waste, plants or other living things.

Last year, renewables overtook coal as **Germany**'s main source of energy for the first time, accounting for just over 40% of electricity production.

WHAT CAN THE UK DO?

Bring back the green energy subsidy scheme

In 2010, the Government introduced something called the Feed-in Tariff (FiT) scheme, which encouraged people to use renewable energy sources. Here's how it works:

- A homeowner can introduce a way of capturing renewable energy in their property, such as solar panels on their roof
- Electricity generated by these devices is exported and shared with others
- The homeowner gets paid money by their electricity/gas supplier for the electricity they have generated
- The Government gives money to people to pay for part of the solar panels they have installed

More than 800,000 households have installed solar panels since the scheme was launched. But there's a problem. The Government has scrapped the scheme, ending their payments to homeowners. In 2015, they reduced how much they'd give by 65%, and this year they're stopping the programme altogether.

Environmental campaign group Friends of the Earth thinks the Government has made a huge mistake. They said: "It's outrageous that the Government continues to hand out billions of pounds in subsidies [financial support] every year to climate-wrecking fossil fuels, while trying to block the clean energy sources we urgently need."

Spend more on onshore wind farms

In the past, the Government gave money to support the construction and running of wind turbines on UK land. In 2015, they scrapped new subsidies. The Energy Minister at the time said the wind energy industry needed to stand on its own two feet rather than rely on Government help. What's strange is that the Government's own figures show that onshore wind farms are the cheapest source of new electricity generation. But, earlier this year, the Energy Minister Claire Perry ruled out giving money to help launch new onshore wind farms.

YES, THE GOVERNMENT IS DOING ENOUGH TO CONVERT TO RENEWABLES

1. RENEWABLES ARE RISING – We get very little of our energy from coal these days, and the reliance on gas and oil is falling. Renewables are increasing every year, and we have much to be proud of.

2. THEY ARE ALREADY SPENDING A LOT – The Government has said it is committed to the fight against climate change. In total, they have committed to spending at least £5.8 billion between 2016 and 2021 on lowering carbon emissions. A lot of this money will be spent on renewables.

3. GOVERNMENTS HAVE TO MAKE PRIORITIES – The Government is under pressure to spend limited funds on various things: education, health, transport, police and, of course, tackling climate change. They have to make difficult decisions and cannot afford to pump more money into renewables at the moment.

NO, THE GOVERNMENT IS NOT DOING ENOUGH TO CONVERT TO RENEWABLES

1. WE STILL RELY TOO MUCH ON FOSSIL FUELS – In 2017, the last full year for which we have data, 80% of UK energy came from fossil fuels. That's much higher than countries including Sweden, Denmark and Uruguay. We must rely on renewables, not oil, gas and coal.

2. GREEN ENERGY CREATES JOBS – Switching from fossil fuels to green energy will create thousands of jobs here in the UK. According to the UK's renewable energy trade association, Renewable UK, the industry already employs more than 250,000 people, and offshore wind alone could be responsible for 27,000 jobs by 2030.

3. RENEWABLES ARE ALL AROUND US – Britain is very lucky to have conditions favourable to renewable energy sources. With the support of the Government, we could harness all of our electricity energy from wind, sun and tidal sources. The Government must do more.

DISCUSS

Why is renewable energy important?

DISCUSS

Why is the UK in a good position to use renewables?

DISCUSS

Should the Government spend more on renewable energy sources?

DISCUSS

If you could choose where your electricity came from, would you go for renewables over non-renewables?

DISCUSS

Are you worried about climate change?

DISCUSS

Do you think individuals like you can tackle climate change, or is it in the hands of the Government?

DISCUSS

Should the Government re-introduce the FiT scheme to help people generate renewable energy in their homes?

DISCUSS

What can you do to encourage the Government to switch to renewables?

DISCUSS

Why might the UK be lagging behind other countries in its use of renewables?

DISCUSS

What do you think could be done to encourage people to use less energy?